



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/087,845	03/05/2002	Yasuhiko Sakaki	108384-00044	1960
6449	7590	03/15/2005	EXAMINER	
ROTHWELL, FIGG, ERNST & MANBECK, P.C. 1425 K STREET, N.W. SUITE 800 WASHINGTON, DC 20005			WILKINS III, HARRY D	
			ART UNIT	PAPER NUMBER
			1742	

DATE MAILED: 03/15/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/087,845

Applicant(s)

SAKAKI, YASUHIKO

Examiner

Harry D Wilkins, III

Art Unit

1742

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 22 December 2004.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 12-15 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 12-15 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☒ Certified copies of the priority documents have been received in Application No. 09/516,788.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- ☒ Notice of References Cited (PTO-892)
- ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____.
- ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- ☐ Notice of Informal Patent Application (PTO-152)
- ☐ Other: _____.

DETAILED ACTION

Rejection Status

1. The rejection under 35 USC 112, 2nd paragraph has been withdrawn in view of Applicant's amendment.

Double Patenting

2. Claim 14 is provisionally rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1-20 of copending Application No. 10/366,302. Although the conflicting claims are not identical, they are not patentably distinct from each other because the claims of the '302 application discloses a plating apparatus including a plating tank and means for stirring the plating solution beneath a target surface. Though the claims do not explicitly recite an anode or cathode or a liquid-supply means, one of ordinary skill in the art would have known that the plating apparatus of the claims would have such features. For example, see other cup-type plating apparatuses of Woodruff et al (US 6,280,582 and 6,280,583).

This is a provisional obviousness-type double patenting rejection because the conflicting claims have not in fact been patented. However, an Notice of Allowance in 10/366,302 was issued on 2 December 2004 and the issue fee was paid on 23 February 2005.

Claim Rejections - 35 USC § 102

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

Art Unit: 1742

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

4. Claims 12 and 14 are rejected under 35 U.S.C. 102(b) as being clearly anticipated by Nishio et al (JP 05-175158).

Nishio et al anticipate the invention as claimed. Nishio et al teach (see English abstract and figure 1) a cup type plating apparatus comprising: a plating tank 21 in which a wafer 10 is plated having an opening at a top side on which the wafer is placed, a liquid-supply tube 21b provided at a bottom center of the plating tank, an anode 27 in the plating tank, a cathode 28 connected to the wafer, and stirring means 31 beneath the surface of the wafer to be plated for forcibly stirring the plating solution to form a liquid-flow channel in the plating solution in an upward flow from the liquid-supply tube, and the plating solution contacts the surface of the wafer to be plated.

5. Claims 14 and 15 are rejected under 35 U.S.C. 102(e) as being anticipated by Keigler (US 6,251,250).

Keigler anticipates the invention as claimed. Keigler teaches (see abstract, Figures 2-4) a cup type electroplating apparatus including a plating tank in which a wafer is plated by a plating solution, the tank having an opening at the top into which the wafer is placed, a liquid-supply means for supplying the plating solution to the wafer, an anode, a cathode connected to the wafer and means for stirring the plating solution beneath a target surface of the wafer to form a liquid-flow channel in an upward flow

Art Unit: 1742

from the liquid-supply means such that the plating solution contacts the target surface of the wafer.

Regarding claim 15, Keigler teaches (see Figures 2-4 and col. 9, line 58 to col. 11, line 38) that the stirring means include a donut-shaped disc 62 provided with stirring blades 44 for forcibly altering the flow of plating solution beneath the periphery of the target surface of the wafer and a driving mechanism capable of holding the disc parallel to the target surface of the wafer and rotating it perpendicularly to the upward flow of the plating solution.

Claim Rejections - 35 USC § 103

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

7. Claims 12 and 13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Keigler (US 6,251,250).

The teachings of Keigler are described above. Keigler does teach (see col. 12, line 65 to col. 13, line 40 and figures 3-6) that the liquid supply means provide for liquid-supply tube 110 feeding into manifold 112 arranged at the periphery of the plating tank and that there is also plating solution feed "tube" 47 for feeding the plating solution at the center of the wafer.

Thus, Keigler does not teach a liquid-supply tube provided at a bottom center of the plating tank.

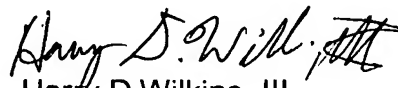
However, it would have been obvious to one of ordinary skill in the art to have rearranged the parts of Keigler to have placed the liquid supply tube in direct communication with tube 47, such that the liquid-supply tube would have been at a bottom center of the plating tank.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Harry D Wilkins, III whose telephone number is 571-272-1251. The examiner can normally be reached on M-Th 10am-8:30pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Roy V King can be reached on 571-272-1244. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).


Harry D Wilkins, III
Examiner
Art Unit 1742

hdw